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Inelastic Neutron Scattering from Anisotropic Superconductors.

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The inelastic scattering cross-section, including the effects of strong non-magnetic impurity pair breaking effects, is calculated for anisotropic superconductors assuming the validity of the quasi-particle picture. The pair breaking effects of the impurities are treated by using the T -matrix approximation and assuming the scattering strength is close to the unitarity limit. The results show that the anisotropy of the superconducting order parameter may be directly observable in inelastic neutron scattering experiments from single phase superconducting samples. For triplet superconductors, the quasi-particle density of states should be accessible from experiments involving low momentum transfers and should provide a much more direct method than by investigation of the various power laws expected at low temperature from thermodynamics and N.M.R. relaxation rates. The theory is applied to heavy fermion superconductors.